IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Anthony C. Zuppero et al.	Art Unit:	1753
Serial No.:	10/625,801	Examiner:	Diamond, Alan D.
Filing Date:	July 23, 2003	Date:	February 9, 2005

TITLE: **GAS SPECIE ELECTRON-JUMP CHEMICAL ENERGY CONVERTER**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

S I R:

1. In accordance with the duty of disclosure under 37 C.F.R. § 1.56 and in conformance with the procedures of 37 C.F.R. § § 1.97 and 1.98 and M.P.E.P. § 609, attorneys for Applicants hereby bring the following references, which are listed on the attached modified PTO Form No. 1449 to the attention of the Examiner. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, Group Art Unit 1753 at (703) 872-9306 on February 9, 2005.

Amelia Finker

Amelia Finker

2. Applicants respectfully request that the following co-owned patents and co-pending applications be considered and made of record in the present application:

US Patent Nos. 6,114,620 (cited on PTO-892 by the Examiner); 6,218,608 (cited on PTO-892 by the Examiner); 6,222,116 (cited on PTO-892 by the Examiner); 6,268,560 (cited on PTO-892 by the Examiner); 6,327,859 (cited on PTO-892 by the Examiner); 6,700,056 (cited on PTO-892 by the Examiner); 6,678,305 (cited on PTO-892 by the Examiner); 6,649,823 (cited on PTO-892 by the Examiner); and US Patent Application Nos. 09/682,363 (cited on PTO-892 by the Examiner); 10/218,706 (cited on PTO-892 by the Examiner); 10/185,086 (cited on PTO-892 by the Examiner); 09/631,463; 10/759,341; 10/052,004 (cited on PTO-892 by the Examiner). The references cited in each of those patents and applications are listed on Form 1449 accompanying this information disclosure statement.

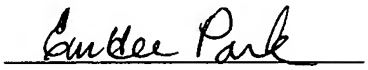
3. Copies of the references listed on the modified PTO form 1449 will follow under separate cover by first class mail due to their volume.

4. This information disclosure statement is being filed under 37 C.F.R. § 1.97(b)(4), before the mailing date of a first Office action after the filing of a request for continued examination under §1.114.

5. No fee is deemed necessary with the filing of these documents. If a fee is deemed necessary, we authorize the Commissioner of Patents and

6. Trademarks to charge Deposit Account No.: 02-0393.

Respectfully submitted,



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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 62

Complete if Known	
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US- 4753579	06-1988	Murphy	
	2	US- 5525041	06-1996	Deak	
	3	US- 5299422	04-1994	Nakagawa et al.	
	4	US- 5317876	05-1994	Nakagawa et al.	

FOREIGN PATENT DOCUMENTS

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	5	US- 20020070632	06-2002	Zuppero et al.	
	6	US- 4651324	03-1987	Prein et al.	
	7	US- 5337329	08-1994	Foster, Jack	
	8	US- 4756000	07-1988	Macken, John A.	
	9	US- 5999547	12-1999	Schneider et al.	
	10	US- 5048042	09-1991	Moser et al.	
	11	US- 5587827	12-1996	Hakimi et al.	
	12	US- 4012301	03-1977	Rich et al.	
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	14	5,651,838		Fraas et al.	07-29-1997	
	15	5,932,885		DeBellis et al.	08-03-1999	

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	16	US- 4,634,641	01-06-1987	Nozik	
	17	US- 5,488,231	01-30-1996	Kwon et al.	
	18	US- 5,757,833	05-26-1998	Arakawa et al.	
	19	US- 5,917,195	06-29-1999	Brown	
	20	US- 6,067,309	05-23-2000	Onomura et al.	
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Sheet 5 of 62

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	21	US-6084173	07/04/2000	DiMatteo	
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	22	HARRISON, P. et al., The Carrier Dynamics of Far-Infrared Intersubband Lasers and Tunable Emitters, Institute of Microwaves and Photonics, University of Leeds, U.K., pp. 1-64	
	23	WEBER, et al., "to X2 Electron Transfer Times in Type-II GaAs/A1As Superlattices Due to Emission of Confined and Interface Phonons, Superlattices and Microstructures, Vol. 23, No. 2 (1998).	
	24	FANN, W.S. et al., Electron Thermalization in Gold, Physical Review B, Brief Reports, Vol. 46, No. 20, (1992)	
	25	Ultrafast Surface Dynamics Group, Time-Resolved Two-Photon Photoemission (TR-2PPE), http://www.ilp.physik.uni-essen.de/aeschlimann/2y_photo.htm	
	26	LEWIS et al., Vibrational Dynamics of Molecular Overlayers on Metal Surfaces, Dept. of Chemistry, University of Pennsylvania, http://lorax.chem.upenn.edu/molsurf/cucotalk/html.	
	27	RETTNER et al., Dynamics of the Chemisorption of 02 on Pt(111): Dissociation via Direct Population of a Molecularly Chemisorbed Precursor at High Incidence Kinetic Energy, The Journal of Chemical Physics, Vol. 94, Issue 2 (1991)	
	28	FRIEDMAN et al., SiGe/Si THz Laser Based on Transitions Between Inverted Mass Light-Hole and Heavy Hole Standards, Applied Physics Letters, Vol. 78, No. 4 (2001)	
	29	HARRISON et al., Population -Inversion and Gain Estimates for a Semiconductor TASER	
	30	HARRISON et al., Theoretical Studies of Subband Carrier Lifetimes n an Optically Pumped Three-Level-Terahertz Laser, Superlatttices and Microstructures, Vol. 23, No. 2 (1998)	
	31	HARRISON et al., Room Temperature Population Inversion in SIGe TASER Designs, IMP, School of Electronic and Electrical Engineering, The University of Leeds	
	32	SUN et al., Pheonon-Pumped Terhertz Gain In n-Type GaAs/AlGaAs Superlattices, Applied Physic Letters, Vol. 7; No.22 (2001)	

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

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	33	ALTUKHOV et al., Towards Si1-xGex Quantum-Well Resonant-State Terahertz Laser, Applied Physics Letters, Vol. 79, No. 24 (2001)	
	34	SUN et al., Intersubband Lasing Lifetimes of SiGe/Si and GaAs/AlGaAs Multiple Quantum Well Structures, Applied Physics Letters, Vol. 66, No. 25 (1995)	
	35	SUN et al., Phonon Pumped SiGe/Si Interminiband Terahertz Laser	
	36	SOREF et al., Terhertz Gain in a SiGe/Si Quantum Starcase Utilizing the Heavy-Hole Inverted Effective Mass, Applied Physics Letters, Vol. 79, No. 22 (2001)	
	37	AESCHLIMANN et al., Competing Nonradative Channels for Hot Electroni Induced Surface Photochemistry, Chemical Physics 202, 127-141 (1996)	
	38	AUERBACH, Daniel J., Hitting the Surface-Softly, Science, Vo. 294, pp. 2488-2489 (2001)	
	39	BADESCU et al., Energetics and Vibrational States for Hydrogen on Pt(111), Physical Review Letters, Vol. 88, No. 13 (2002)	
	40	BALANDIN et al., Effect of Phonon Confinement on the Thermoelectric Figure of Merit of Quantum Wells, Journal of Applied Physics, Vol. 84, No. 11 (1998)	
	41	BARTELS et al., Coherent Zone-Folded Longitudinal Acoustic Phonons in Semiconductor Superlattices: Excitation and Detection, Physical Review Letters, Vol. 82, No. 5 (1999)	
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	44	VALDEN et al., Onset of Catalytic Activity of Gold Clusters on Titania with the Appearance of Nonmetallic Properties, Science, Vol. 281 (1998)	
	45	BONDZIE et al., Oxygen Adsorption on Well-Defined Gold Particles on TIO2(110), J. Vac. Sci. Technol. A17(4) (1999)	
	46	BEZANT et al., Intersubband Relaxation Lefetimes in p-GaAs/AlGaAs Quantum Wells Below theLO-Ohonon Energy Measured in a Free Electron Laser Experiment, Semicond. Sci. Technol. 14 (1999)	
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	49	BURGI et al., Probing Hot-Electron Dynamics at Surfaces with a Cold Scanning Tunneling Microscope, Physical Review Letters, Vol. 82, No. 22 (1999)	
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	52	CHANG et al., Coherent Phonon Spectroscopy of GaAs Surfaces Using Time-Resolved Second-Harmonic Generation, Chemical Physcis 251, 283-308 (2000)	
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	54	CHEN et al., Stimulate-Emission-Induced Enhancement of the Decay Rate of Longitudinal Optical Phonons in III-V Semiconductors; Applied Physics Letters, Vol. 80, No. 16 (2002)	

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	55	CORCELLI et al., Vibrational Energy Pooling in CO on NaCl(100): Methods, Journal of Chemical Physics, Vol. 116, No. 18 (2002)	
	56	FIERZ et al., Time-Resolved 2-Photon Photoionization on Metallic Nanoparticles, Appl. Phys. B 68 (1999); http://www.ilp.physik.uni-essen.de/aeschlimann/abstratct.htm#6	
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	58	BONDZIE et al., Oxygen Adsorption on Well-Defined Gold Particles on TiO2(110), Journal of Vacuum Science & Technology A: Vacuum, Surfaces and Films, Vol. 17, Issue 4, pp. 1717-1720 (1999)	Same as cite no. 45
	59	HARRISON et al., Maximising the Population Inversion, by Optimizing the Depopulation Rate, in Far-Infared Quantum Cascade Lasers (2001)	
	60	HARRISON et al., The Carrier Dynamics of Terahertz Intersubband Lasers, Some Publishing Company (1999)	
	61	FANN et al., Electron Thermalization in Gold, Physical Review B, Vol. 46, No. 20 (1992)	Same as cite no. 24
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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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Complete if Known	
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Sheet 24 of 62

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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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	238	NOLAN, P. D., et al.; "Molecularly chemisorbed intermediates to oxygen adsorption on Pt ..."; J. Chem. Phys. 111, (1999), pp 3696 - 3704 Same as cite no. 107	
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	271	US-5932885	08-1999	DeBellis et al.	Same as cite no. 15
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	287	DT	1,230,509		Bleckrode et al.	12/15/1966	Abstract	X

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	291	G.H. TAKAOKA et al., "Preparation and catalytic activity of nano-scale Au islands supported on Ti02", Nuclear Instruments & Methods in Physics Research, Section - B: Beam Interactions with Materials and Atoms, North-Holland Publishing Company, Amsterdam, NL, Vol. 121, No.1, 1997, pages 503-506, XP004057973, abstract.	
	292	P. AVOURIS et al., "Electron-Stimulated Catalysis Device", IBM Technical Disclosure Bulletin, Vol. 25, No. 12, May 1, 1983, pages 6378-6379, New York, US, XP002219954.	

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Sheet 38 of 62

Complete if Known	
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	293	5,651,838		Fraas et al.	07-29-1997	Same as cite no. 14
	294	5,932,885		DeBellis et al.	08-03-1999	Same as cite no. 15
	295	4,753,579		Murphy	06-28-1988	Same as cite no. 1
	296	5,525,041		Deak	06-11-1996	Same as cite no. 2
	297	5,299,422		Nakagawa et al.	04-05-1994	Same as cite no. 3
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	299	"Electron-hole pair creation by reactions at metal surfaces", downloaded from www.aps.org/meet/CENT99/BAPS/abs/S6980001.html American Physical Society Centennial Meeting Program, Atalanta, GA, 20-26 March 1999 Same as cite no. 235	
	300	"Electron-Hole Pair Creation at Ag and Cu Surfaces by Adsorption of Atomic Hydrogen and Deuterium", Physical Review Letters, Volume 82, Number 2. 11 January 1999	
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	309	US- 6,232,546	05-15-2001	DiMatteo et al.	
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First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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	337	US-6,537,829	03-2003	Zarling et al.	
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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	345	US-2003/0207331	11-2003	Wilson et al.	
	346	US-2003/0166307	09-2003	Zuppero et al.	
	347	US-2003/0100119	05-2003	Weinberg et al.	
	348	US-2003/0030067	02-2003	Chen, Wei	
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Sheet 49 of 62

Complete if Known	
Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

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	361	WO 01/28677A1	04-2001	Zuppero et al.		
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Attorney Docket Number	22122878-70

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Application Number	10/625,801
Filing Date	7/23/2003
First Named Inventor	Anthony C. Zuppero
Art Unit	1753
Examiner Name	Alan D. Diamond
Attorney Docket Number	22122878-70

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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	473	US- 6,678,305	01-2004	Zuppero et al	
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